

A NEW SUBSPECIES OF GLAUCOPSYCHE (PHAEDROTES) PIASUS  
FROM NEVADA (LEPIDOPTERA: LYCAENIDAE)

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ABSTRACT—*Glaucopsyche (Phaedrotus) piasus nevada*, new subspecies, is described.

Recently Dr. J. F. Gates Clarke of the National Museum of Natural History, Washington, D.C., brought to my attention an interesting series of *Glaucopsyche piasus* Boisduval that he had collected in central Nevada. These specimens are unusually dark on the upper side with very broad blackish margins. Study of material at the U.S. National Museum, the Allyn Museum of Entomology in Sarasota, Florida, and the University Museum, Boulder, Colorado, confirmed Dr. Clarke's surmise that an unnamed subspecies existed. Inquiry was made of Dr. Rindge at the American Museum of Natural History, Mr. Clench at the Carnegie Museum and Mr. Herlan at the Nevada State Museum. None have material from the mountains of central and eastern Nevada. Material seen from the Toiyabe Range, the Toiyabe Range, the Snake Range and the Ruby Mountains is consistently different from surrounding subspecies. The full extent of the range of this novelty to the east and the southwest has not yet been determined. Burdick material from the White Mountains of California adjacent to the south central Nevada border is closer to the new subspecies than to Californian *sagittigera* (F. and F.). Material from Pocatello, Idaho, is intermediate to the new subspecies and *toxema* Brown. This somewhat established the north-south range.

*Glaucopsyche (Phaedrotus) piasus nevada* Brown, new subspecies  
fig. 1

MALE: maximum radius of the left forewing of the holotype, 15.7 mm.

UPPERSIDE: dark reflecting blue with broad, dark marginal zones. On the forewing the dark marginal zone ranges basad along  $M_2$  from about  $\frac{1}{4}$  to  $\frac{1}{5}$  the distance inward from the margin to the base of the wing. The dark marginal zone is narrower on the hind wing. The fringes are checkered white and black, boldly on the forewing and less so on the hind wing.

UNDERSIDE: warm, dark grey with well developed markings of the usual pattern. Forewing has greyish-black crescentic submarginal marks, indistinctly margined outwardly with a few light scales; the postdiscal series bold and narrowly ringed with whitish scales; cell-end and mid-cell spots well developed and ringed with whitish scales. Hind wing is with the whitish postdiscal band about as wide as the darker submarginal zone of ground color. The nervules are marked with light grey scales. The submarginal row of crescentic black marks is complete.

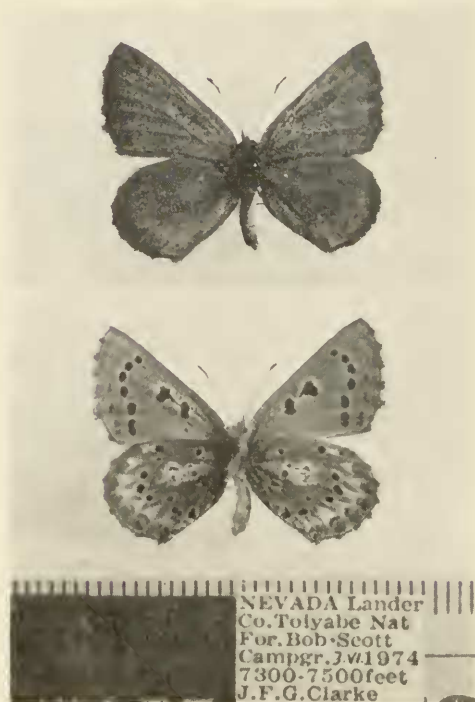


Fig. 1. Holotype of *Glaucopsyche (Phaedrotes) pius nevada* Brown.

A marginal spot in  $Cu_1-Cu_2$  is crowned with an arc of pale rusty scales. Similar, smaller and less pronounced spots in the flanking interspaces are with smaller clusters of rusty scales between the spots and the whitish band. The "arrowheads" of the whitish band are not strongly sagittate. The postdiscal series of black spots is complete but varying in size. Each of these spots is ringed with whitish scales. A subcostal spot near the base, a mid-cell spot and two very small cell-end spots complete the black decoration. The characteristic elongated whitish patch on the cell often is smaller than usual in *pius*.

FEMALE: maximum radius of the left forewing of the allotype, 13.2 mm.

UPPERSIDE: the blue is a little lighter than on the male and the dark margins wider, especially on the forewing. On the forewing the dark margin covers  $\frac{1}{2}$  to  $\frac{2}{3}$  the distance from the edge of the wing to the base. On the hind wing the dark margin is from  $\frac{1}{5}$  to  $\frac{1}{4}$  the width of the wing along  $Cu_2$ . Sometimes there are touches of rusty scales near the inner margin of the dark zone in the vicinity of the anal angle. These are never so prominent as on *pius sagittigera*.

UNDERSIDE: marked as on the male. On the forewing the submarginal area is lighter than the rest of the ground color. On the hind wing the whitish area on the cell appears to be larger than on the male type.

DISTINGUISHING FEATURES: the subspecies *nevada* is noticeably darker on the upper side and has much wider dark marginal areas than are found on

typical specimens of the other subspecies. This is especially true of the females of *nevada*. The subspecies *pius pius*, from coastal regions of California, has very subdued contrast on the underside of the hind wings and in that differs from the other subspecies including *nevada*. The other west coast subspecies, *pius sagittigera*, with strong contrast on the under hind wing, has narrower marginal dark zones, is much paler on the upperside and usually has bold rusty patches in the submargin on that surface of the female. Such patches are occasionally found on *nevada* but always are much smaller and usually obsolescent. The Rocky Mountain subspecies, *pius daunia*, has lighter coloring on the upper side and much narrower dark margins, especially on the females. Beneath, *daunia* and *nevada* are quite close. On the upperside *nevada* and *toxuma* approach each other in tone of the blue, but *toxuma* has much narrower dark margins than are found on *nevada*. Beneath this pair of subspecies approach each other closely. On *nevada* the postdiscal series of black spots (at the inner edge of the whitish zone) is complete though varying in size. On *toxuma* this series is incomplete. A tension zone between the two may exist across southern Idaho.

**HOLOTYPE:** a male in the collections of the United States National Museum of Natural History, Washington, D.C. It was collected by Dr. J. F. G. Clarke at Bob Scott Campground in the Toiyabe National Forest, Lander County, Nevada, 7300-7500 feet above sea level, 3 June 1974.

**ALLOTYPE:** a female in the collection of the United States National Museum of Natural History bearing the same data as the holotype.

**PARATYPES:** thirteen additional specimens, 10 ♂♂, 3 ♀♀, collected by Dr. Clarke at the same place as the holotype on dates ranging from 31 May through 3 June 1974.

In the Allyn Museum of Entomology, Sarasota, Florida, there are seven specimens from the Toiyabe Range that bear the following data: 2 ♂♂ Summit Canyon, 7000-7200 ft. a.s.l., Nye Co., 30-vi-1.vii.1968, collected by J. Emmel and O. Shields; 1 ♂ Kingston Canyon, Lander Co., 7.vii.1969, collected by C. Callaghan; 1 ♂ Kingston Canyon, Lander Co., 6000-7200 ft. a.s.l., 30.vi.1968, collected by J. Emmel and O. Shields; 2 ♂♂ south and west facing slopes, Victorine Canyon, south side of Bunker Hill, Lander Co., 8000-10,000 ft. a.s.l., 11.vii.1969, collected by J. Emmel and O. Shields; 1 ♀ Italian Creek, Lander Co., 20.vii.1969, collected by C. Callaghan.

The following paratypes in the University Museum, Boulder, Colorado, are from the William N. Burdick Collection. All of the material was taken in Nye County, Nevada, in either the Toiyabe Range or across the valley in the Toiyabe Range. It was papered for almost 40 years and is somewhat faded. 6 ♂♂, 2 ♀♀, Toiyabe Range, 7400', W. side Cloverdale Ck., T10N, R39E, Sec. 25, 5.vi.1935; 1 ♂, 6 ♀♀, Toiyabe Range, 7000', Reese River Camp, T12N, R40E, Sec. 34, 11.vi.1935; 2 ♀♀, Toiyabe Range, 8000', Mt. Jefferson Creek, T10N, R44E, Sec. 24, 16.vi.1935; 6 ♂♂, 1 ♀ N. Fork Twin River, 7-9000', T12N, R42E, Sec. 23, 22.vi.1935; and, 1 ♀, S. Fork Twin River, T12N, R42E, Sec. 28, 25.vi.1935.

In addition to the type series in the National Museum of Natural History there is a short series of *nevada* from the Angel Lake area, Humboldt Range (Ruby Mountains) in Elko County, Nevada, taken 29.vii.1949. In the Allyn Museum

there are 30 specimens from the Angel Lake area and three from other points in the Ruby Mountains, Elko Co., Nevada. The Allyn Museum also holds a short series from Snake Creek, Snake Range, White Pine Co., Nevada. All of these are good examples of *piasus nevada* but I have excluded them from the paratype series. My reason is trivial, I prefer the type series to be geographically as homogeneous as possible.

Specimens from the vicinity of Pocatello, Idaho, appear to be intermediate between *nevada* and *toxema*. The single specimen that I have seen from Humboldt County, Nevada, is best placed with *piasus sagittigera*. I suspect this may be true for all specimens from western Nevada. The series of *piasus* in the Burdick Collection from the White Mountains, Inyo County, California, resembles *nevada* very closely. It differs in that the blue of the upper side is somewhat lighter, just about the same as *sagittigera* while the dark marginal areas are as on *nevada*. I suspect that these may be somewhat faded through age.

While at the National Museum of Natural History I had the opportunity of studying Boisduval's types of *piasus* and of *rhea*. They are placed correctly in Brown (1971). On the other hand more careful study of the type of Reakirt's *catalina* in the Field Museum of Natural History, Chicago, places it and *lorquini* Behr in the synonymy of *piasus piasus* Boisduval (compare figs. 1-4 with figs. 16-18, Brown *op. cit.*).

#### REFERENCE

- Brown, F. Martin. 1971. The "Arrowhead Blue," *Glaucopsyche piasus* Boisduval (Lycaenidae: Plebelinae). Jour. Lepidopterists' Soc. 25:240-246.

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#### A STRANGE APHID FORM

In a collection of aphids from leaves of mockernut hickory, *Carya tomentosa*, taken June 10, 1975 at the National Arboretum, Washington, D.C., was 1 individual of *Monelliopsis nigropunctata* (Granovsky) that combines characters of ovipara and vivipara. It is largely like the ovipara—apterous with 6 rows of capitate setae (2 marginal and 4 dorsal) but it has knobbed cauda and bilobed anal plate of the adult vivipara, which is always alate. The body contains 5 smooth eggs and 4 or more setate embryos. The one hind tibia present has sensoria as found in the ovipara.

From the same collection were reared 25 normal viviparae of *nigropunctata* besides specimens of 2 species of *Monellia*.

An aphid form such as this has not been seen before in over 20 years of collecting from hickories and walnuts. Oviparae have never been taken in the Washington area before September.

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